

REMARKS

The Examiner's recognition of Applicants' invention by the indication of allowable subject matter for claims 18-23 and 26 is gratefully acknowledged.

Claim 1 is amended to more particularly point out that the claimed fuel delivery system includes a filter, and that the regulator and the combination valve are disposed in the recited fluid pathway between the filter and the engine, see Fig. 3. Claim 17 is amended to include features of the combination valve previously presented in claim 18, now cancelled. Claim 19 is amended and made dependent upon claim 17. Claim 24 is amended to include features previously recited in claims 25 and 26, now cancelled.

Claim Rejections based upon Powell et al.

Claims 1, 12 and 17 were rejected under 35 U.S.C. § 102(b) as anticipated by United States Patent No. 5,673,670, issued to Powell et al. in 1997. Claim 28 was rejected under 35 U.S.C. § 103 as unpatentable over Powell et al.

Powell et al. describes a returnless fuel system that requires 2 regulators, see Fig. 1. Regulator 10 regulates fuel pressure in fuel rail 20. The system also includes a bypass-type regulator 23 that regulates fuel pressure at the pump outlet. Between the regulators are a check valve 25, a pressure relief valve 27 and a filter 17. It is significant that the bypass regulator is upstream of the filter. The pressure drop across the filter varies during use, in part because of the accumulation of contaminants. Thus, the bypass regulator is not effective to control fuel rail pressure, and a second regulator is required.

Also, because regulator 10 is in series with the pressure relief valve 27, the pressure relief valve in Powell et al. does not control fuel rail pressure during shut-off periods. In one aspect of Applicants' invention, both the regulator and the combination valve are located between the filter and the engine and so control fuel pressure in the engine, both during pumping (the regulator) and during shut-off (the system pressure relief valve). Powell et al. does not have this feature and so does not anticipate Applicants' invention.

Claim 1 is directed to Applicants' fuel delivery system that includes a fluid pathway from the pump to the engine, and a regulator and a combination valve disposed in said pathway. The claim is amended to more particularly point out that the system includes a filter and that the regulator and combination valve are disposed between the filter and the engine. Because of the downstream location, the regulator and the combination valve are able to control fuel pressure within the engine. Powell et al. shows a system in which the regulator and the valves are located upstream from the filter and so must provide a second regulator to control engine fuel pressure. Even then, the pressure relief valve does not regulate engine fuel pressure. Thus, Powell et al. does not teach, or even suggest, Applicants' fuel system in claim 1.

Claims 12 and 28 are dependent upon claim 1 and so not taught or suggested by Powell et al. at least for the reasons set forth with regard to that claim.

Claim 17 is directed to Applicants' fuel delivery system and is amended to recite that the combination valve comprises a valve housing configured to be secured to said

fluid pathway, a pump relief valve received in an inner opening of the valve housing, and a system pressure relief valve received in an inner opening of the pump relief valve, and a check valve received in an opening of the system pressure relief valve, features originally in claim 18 and acknowledged in the Office Action as allowable over Powell et al.

Accordingly, it is respectfully requested that the rejection of the claims based upon Powell et al. be reconsidered and withdrawn, and that the claims be allowed.

Claim Rejections based upon Powell et al. and Rutan, Oberg, Miwa et al. or Briggs et al.

Claims 2 and 4-9 were rejected under 35 U.S.C. § 103 as unpatentable over Powell et al. in view of United States Patent No. 4,561,559, issued to Rutan et al. in 1985. Claim 3 was rejected under 35 U.S.C. § 103 as unpatentable over Powell et al. in view of United States Patent No. 5,794,657, issued to Oberg in 1998. Claim 11 was rejected under 35 U.S.C. § 103 as unpatentable over Powell et al. in view of United States Patent No. 5,842,454, issued to Miwa et al. in 1998. Claim 10 was rejected under 35 U.S.C. § 103 as unpatentable over Powell et al. in view of Rutan et al. further in view of Miwa et al. Claim 27 was rejected under 35 U.S.C. § 103 as unpatentable over Powell et al. in view of United States Patent No. 5,361,742, issued to Briggs in 1994.

Claims 2-11 and 27 are dependent upon claim 1. For the reasons above, Powell et al. describes a 2-regulator system in which the bypass regulator and valves are located upstream from the filter and so cannot control engine fuel pressure, thus necessitating the

second regulator. In contrast, Applicants' fuel delivery system comprises a regulator and combination valve located downstream from the filter and effective to control engine fuel pressure. Thus, Powell et al. does not teach or suggest Applicants' fuel delivery system. Moreover, the secondary references do not make up this deficiency.

Rutan et al. discloses a valve for a fuel venting system. Referring to Fig. 1, valve 23 is connected to a filler tube 13 for filling tank 11. Rutan et al. does not disclose a system that supplies fuel from the tank to the engine, does not provide a pump, regulator, filter or other elements required for such a system, and so does not teach or suggest Applicants' system therefor.

Oberg shows a check valve for a fuel system. Referring to Fig. 5, check valve 8 is disposed between the tank 50 and the fuel pump located outside the tank. Thus, the valve communicates with the inlet to the pump. Applicants' invention is directed to the fuel exiting from the outlet port of the pump, and includes an arrangement of regulator, filter, and combination valve not shown in Oberg.

Miwa et al. is applied to show a fuel system having a fuel pressure of 400 kPa during starting. The fuel pressure in Miwa et al. is controlled by the electric current to the fuel pump. Miwa et al. does not show a regulator, or more particularly, a regulator arranged in conjunction with a combination valve. It is significant, though, that Miwa et al. describes a returnless system (without a return line) and shows a filter 16 disposed in the fuel line outside tank 11, similar to the filter location in Powell et al. Thus, a

regulator or combination valve would be located upstream of the filter, like Powell et al. Thus, Miwa et al. does not teach or suggest Applicants' system in which the regulator and combination valve are located downstream from the filter.

Briggs et al. describes a fuel system that includes a fuel manifold 22 connected to a fuel pump 40, see Fig. 1. The fuel pressure is regulated by controlling the electric current to the fuel pump, see col. 2, lines 20-24. The manifold in Briggs et al. includes a check valve, a vent valve and a pressure relief valve. With electric pressure control, and the pressure relief valve that is normally closed, col. 3, beginning at line 15, Briggs et al. does not provide, or need, a regulator. Also, Briggs et al. contemplates a direct connection between the pump and the manifold, and so does not provide a filter downstream from the valves. Without these features, Briggs does not show Applicants' arrangement of filter, regulator and combination valve.

Thus, the combination of all these references fails to point the practitioner to Applicants' invention. Powell et al. arranges the filter at a location that necessitates a second regulator to control engine fuel pressure. None of the secondary references, which are applied mainly to show particularly features preferred in Applicants' combination valve, suggest a filter within the tank prior to the regulator or valves. Therefore, even if read together, there is nothing to point to rearrangement of the filter in Powell et al. so as to arrive at Applicants' invention.

Claim 1 is directed to Applicants' fuel delivery system that includes a includes a

filter in the fuel pathway in fluid communication with the outlet port of the pump, a regulator between the filter and the engine, and a combination valve also between the filter and the engine. Further, the claim calls for the regulator to be located between the combination valve and the filter. In Powell et al., the regulator and valves are located upstream from the filter. Nothing in the secondary references, to the extent that they contemplate a filter, point to a downstream placement. Thus, even if combined, the references fail to suggest Applicants' system in claim 1. It follows, therefore, that they cannot suggest the system in the claims dependent thereon.

Therefore, it is respectfully requested that the rejection of the claims based upon Powell et al., Rutan et al., Oberg, Miwa et al., and/or Briggs et al. be reconsidered and withdrawn, and that the claims be allowed.

Claim Rejections based upon Bader

Claim 24 was rejected under 35 U.S.C. § 102(b) as anticipated by United States Patent No. 2,704,035, issued to Bader in 1955.

Bader shows a fuel injection system comprising a dual retraction valve that includes a main retraction valve and a pilot valve. However, as recognized in the Office Action by the indication of allowable subject matter for claim 26, Bader does not show a combination valve that includes a pump pressure relief valve comprising a body portion and a biasing member between the valve housing and the body portion to open the

pressure relief valve, and a check valve that has a body portion within the inner opening of said pump pressure relief valve and a biasing member between said inner opening of said pump pressure relief valve and said body portion of the check valve to open the check valve.

In view of the amendments to claim 24 to include the features of claim 26, now cancelled, it is respectfully requested that the rejection be withdrawn and that claim 24 be allowed.

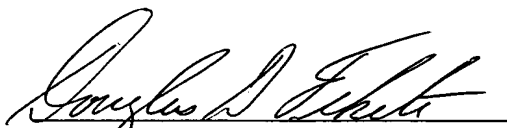
Conclusion

Claims 18-23 and 26 were objected to as dependent upon a rejected base claim. Claim 17 has been amended to include the features of claim 18. Claims 19-23 are dependent upon the amended claim 18. Claim 24 is amended to include the features of claims 25 and 26. In view of these amendments, it is believed that the 17, 19-23 and 24 are now allowable. Accordingly, it is requested that the objection be withdrawn, and that all claims be allowed.

If it would further prosecution of the application, the Examiner is urged to contact the undersigned at the phone number provided.

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 50-0831.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Douglas D. Fekete", is written over a horizontal line.

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